

CLAIMS

1. A marine seismic survey system comprising a marine
5 cable with a plurality of piezo-ceramic pressure
sensors, wherein said plurality of pressure sensors is
arranged in groups of at least two pressure sensors
with a group output being representative of the
vertical pressure gradient at the group location, said
10 system further comprising one or more electromechanical
transducers to generate signals to generate a response
indicative of the orientation of said at least two
pressure sensors.
- 15 2. The seismic survey system of claim 1 wherein the group
comprises at least three hydrophones.
3. The seismic survey system of claim 1 wherein the at
least two pressure sensors of a group are located in a
20 plane perpendicular to the main or longitudinal axis of
the cable.
4. The seismic survey system of claim 1 wherein the at
least pressure sensors of a group are located in a
25 plane perpendicular to the main or longitudinal axis of
the cable and wherein an output of said group is
combined with an output of a further hydrophone located
outside said plane.
- 30 5. The seismic survey system of claim 1 wherein the group
comprises four hydrophones in a tetrahedral
configuration.

6. The seismic survey system of claim 1 wherein the at least two pressure sensors contributing to the group output being representative of the vertical pressure gradient are located within a section the cable of less than 10 cm length as measured in the main or longitudinal direction of said cable.
7. The seismic survey system of claim 1 wherein each pressure sensor of a group is arranged at essentially equal distance from the other sensors of the group.
8. The seismic survey system of claim 1 wherein the pressure sensors of a group are connected to provide an output representative of a linear combination of individual sensor signals prior to digitization.
9. The seismic survey system of claim 1 wherein the one or more electromechanical transducers are a plurality of inclinometers distributed along the length of the cable.
10. The seismic survey system of claim 1 wherein the one or more electromechanical transducers are one or more acoustic or sonic sources.
11. The seismic survey system of claim 10 wherein the one or more electromechanical transducers are one or more acoustic sources located within cables towed in parallel with the cable carrying the groups of at least two hydrophones.
12. The seismic survey system of claim 1 wherein the one or more electromechanical transducers are adapted to operate independently of the hydrostatic pressure.

13. A marine seismic cable with a plurality of piezo-ceramic pressure sensors, wherein said plurality of pressure sensors is arranged in groups of at least two pressure sensors with a group output being representative of the vertical pressure gradient at the group location, for use in system according to claim 1.
14. A method of acquiring an acoustic wavefield having in-line, cross-line and vertical components using a marine seismic survey system comprising a marine cable with a plurality of piezo-ceramic pressure sensors, wherein said plurality of pressure sensors is arranged in groups of at least two pressure sensors with a group output being representative of the vertical pressure gradient at the group location, said system further comprising one or more electromechanical transducers to generate signals adapted to generate a response indicative of the relative position of said at least two pressure sensors.
15. Seismic data acquired using a method in accordance with claim 14.